

Claim Rejections under 35 U.S.C. 112, second paragraph

Claim 5-6, 8, 10, and 13 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention.

Claim 5 is vague and indefinite because it is unclear whether applicant intends for the clay mineral to be synthetic or not. Applicants herein amend this claim to clarify “a synthetic clay mineral” as one of the optional constituents for the powder.

In claim 6, the Examiner asserts that the term “low crystalline” is a relative term that renders the claim indefinite.

Applicants note that the term “low-crystalline” is defined and described in the specification on page 20, line 17 to page 21, line 22, and respectfully submit that the rejection should be withdrawn.

Claim 8 is objected to because the phrases “scale-like, plate-like, and bar-like” render the claims indefinite because the claims include elements not actually disclosed.

Applicants hereby amend the claim to remove the terms “-like”, and note that support for the claimed shapes is found in the specification on page 15, lines 9-18.

Claim 10 is indefinite because it is unclear what the percentages as claimed are based upon.

Applicants herein amend this claim to read “containing 2 to 50 wt% of hydroxyapatite and 2 to 8 wt% of zinc oxide based on the total weight of substance, including hydroxyapatite and zinc oxide.”

Claim 13 is indefinite because it is unclear what constitutes a sebum-adsorbent agent.

Applicants respectfully traverse this rejection. Applicants submit that one skilled in the art would readily know what a “sebum-absorbing agent” is. Applicants further note that even one not skilled in the art would know that a “sebum-absorbing agent” is an agent for absorbing sebum, which are all readily recognizable words.

Claim Rejections Under 35 U.S.C. §102(b)

Claims 1-6 and 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,122,418 to Nakane et al. The Examiner asserts that Nakane et al. clearly anticipates instant claims 1-6 and 9-14.

Applicants herein cancel claim 1.

Applicants respectfully disagree with this rejection as to claim 2 and its dependent claims. Claim 2 requires that the hydroxyapatite be layered directly on the core powder, and that the zinc be layered directly on the hydroxyapatite. This limitation is not taught by Nakane et al. Therefore, Applicants submit that Nakane et al. can not anticipate claim 2 and claims dependent therefrom.

Claim Rejections under 35 U.S.C. §103(a)

Claims 1-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nakane et al. as applied to claims 1-6 and 9-14 above, and further in view of U.S. Patent No. 6,004,584 to Peterson et al.

Applicants respectfully disagree with this rejection. Applicants note that the claimed invention requires the specific layering of core powder, followed by hydroxyapatite, followed by zinc oxide, and submit that this specific layering provides unexpected benefit over a less rigid coating.

In the present invention as amended above, the powder comprising a base substance (core powder) with hydroxyapatite layered directly on the base substance (core powder), and the zinc oxide layered directly on the hydroxyapatite is provided.

As the comparison between the present invention and the Nakane et al. reference, Applicants present the following Comparative Experiment. Applicants submit that in view of the following Comparative Experiment, it is clear that the present invention has unexpected results over the Nakane et al. reference.

Comparative Experiment between Present Invention and Nakane et al Reference

In the following Table, the result of the Comparative Experiment is shown.

Samples	Amount of adsorption of oleic acid ^{*6} (mg/g)	Time of Solidification ^{*7} (min.)
Inventive substance ^{*1} (Example 1)	229.0	8
Nakane et al. product 1 ^{*2} (Example 29)	95.9	not solidified
Nakane et al. product 2 ^{*3} (Example 23)	115.2	160
Nakane et al. product 3 ^{*4} (Example 15)	38.5	not solidified
Mixture of sericite, low-crystalline ZnO and hydroxyapatite ^{*5}	56.5	not solidified

^{*1}: Refer to Example 1 in the present specification.

^{*2}: Refer to Example 29; “Comparative powder” in Nakane et al. (see col. 28, lines 46-53).

^{*3}: Refer to marginal notes on Table in Example 23; “15% zinc oxide covered nylon powder” in Nakane et al. (See col. 24, lines 55-58).

^{*4}: Refer to marginal notes on Table in Example 15; “Hydroxyapatite powder (10%) covered spherical nylon” in Nakane et al. (See col. 20, lines 50-54).

^{*5}: Applicants produced this by mixing the following three components, that is, (a) sericite, (b) hydroxyapatite and (c) low-crystalline ZnO.

(a) Applicants used 95 g of sericite, which is mean particle size; 8 μ m, and plate (platelet) crystal.

(b) Applicants produced hydroxyapatite by closer process described in Example 1 in the present invention as follows:

32.4 g of calcium acetate were added in 1000 ml of purified water in the reaction vessel, and the resultant mixture was heated to 85°C. When the temperature is 85°C, a solution obtained on dissolving 6.0 g of sodium hydroxide and 15.9 g of disodium hydrogenphosphate in 350 ml of purified water was added to the heated mixture to adjust the pH value of the solution to 9.4. A solution obtained on dissolving 1.35 g of sodium hydroxide in 200 ml of purified water was then added to the mixture to adjust the pH value thereof to 11.4. The reaction mixture was subjected to reaction and curing for one hour. When the curing was finished, the reaction mixture was cooled to 60°C, and as the result, hydroxyapatite was obtained.

(c) Applicants produced low-crystalline ZnO by reaction, which is conducted by adding 20 ml of 5N sodium hydroxide solution to 75 ml of 1M zinc chloride solution, as the pH value was kept at 12.

The mixture described above was produced according to closer process described in Example 1 in the present invention.

*6: Refer to the method described on page 32, lines 5 et seq. in the present specification.

*7: Refer to the method described on page 33, lines 2 et seq. in the present specification.

As the result, in amount of adsorption of oleic acid, inventive substance (Example 1) is higher than any other Samples. In particular, it is approximately two times that of reference product 2, which is highest in the reference products in amount of adsorption oleic acid, and approximately four times that of mixture of sericite, low-crystalline ZnO and hydroxyapatite.

With regard to time of solidification (oleic acid solidification starting time), inventive substance much more superior to any other Samples. In most of the Samples without inventive

substance, the oleic acid is not practically solidified, and however, the oleic acid is solidified in inventive substance at much shorter time. In particular, it takes a much longer time of 160 minutes to solidify the oleic acid in reference product 2 described above. On the basis of the above, time of solidification of inventive substance is a twentieth ($1/20$) times that of reference product 2 described above.

In view of the above, it is clear that a powder in the present invention has unexpected benefits, that is, higher capability of adsorbing sebum (for example, oleic acid or the like), and sebum-solidifying capability at much shorter time.

Accordingly, Applicants respectfully submit that the amended claimed invention is novel and patentable over the cited references.

With regard to claims 7-8, the Examiner notes that Nakane et al. lacks the claimed crystalline size and shape. The Examiner concludes that it would have been obvious to one having ordinary skill in the art to have modified the skin treatment powders of Nakane et al. by coating powders with other shapes such as, the platelet shaped particles of Peterson et al., because of the expectation of obtaining skin care agent capable of adsorbing moisture with powder carriers which are particularly formulated to provide good skin feel.

Applicants respectfully disagree with this conclusion, and note that even if one were so motivated to combine the references, one would still not reach the basic claimed invention, which is a powder comprising a core powder with hydroxyapatite layered directly on the core powder, and zinc layered directly on the hydroxyapatite.

Applicants: **Masaakira HORINO**
Serial No. **09/895,328**

Docket No. **010830**
Group Art Unit: **1619**

For at least the foregoing reasons, Applicants respectfully submit that the claimed invention as amended herein distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action by Applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone Applicants' undersigned attorney.

In the event that this paper is not timely filed, applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 01-2340.

Respectfully submitted,

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Attachments: Version with Markings to Show Changes Made

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please replace the abstract with the following new abstract:

A powder comprising a core powder, a hydroxyapatite layered directly on the core, and zinc layered directly on the hydroxyapatite, suitable for use in cosmetics. The powder has a light reflection curve similar to that of the surface of the skin so that it exhibits good skin feeling and is superior in long wear effect for makeup and antibacterial effect. The powder is also superior in adsorbing, solidifying, or congealing the sebum components or body odor components, and is useful as an effective component for a sebum-adsorbent agent, a body deodorant or the like in addition to cosmetics.

IN THE CLAIMS:

Please cancel claim 1.

Please amend claims 3-8 and 10-14 as follows:

3. (Amended) The powder as defined in claim ~~1~~ or 2, which is used for cosmetics.
4. (Amended) The powder as defined in claim ~~1~~ or 2, which has an adsorbent property for sebum components.
5. (Amended) The powder as defined in claim ~~1~~ or 2, wherein said substance contains an inorganic powder and contains any one of

a clay mineral,

a synthetic clay mineral,

a metal hydroxide,

a metal oxide,

a composite material thereof, and

composite materials(s) of one or more of these inorganic powders with an organic powder, wherein said clay mineral may be a synthetic material.

6. (Amended) The powder as defined in claim ~~1~~ or 2, wherein said zinc oxide contains at least one of low crystalline zinc oxide and amorphous zinc oxide.

7. (Amended) The powder as defined in claim ~~1~~ or 2, wherein said zinc oxide has a crystalline size of 1000Å at the longest as obtained from Scherrer's equation.

8. (Amended) The powder as defined in claim ~~1~~ or 2, wherein said substance contains a lamellar shape, a scale ~~-like~~ shape, a plate ~~-like~~ shape or a bar ~~-like~~ shape.

10. (Amended) The powder as defined in claim ~~1~~ or 2, containing 2 to 50 wt% of hydroxyapatite and 2 to 8 wt% of zinc oxide based on the total weight of substance, including hydroxyapatite and zinc oxide.

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11. (Amended) A cosmetics comprising the powder as defined in any one of claims \pm 2 to 4.
13. (Amended) A sebum-adsorbent agent comprising the powder as defined in claim \pm , 2 or 4.
14. (Amended) A body deodorant comprising the powder as defined in claim \pm , 2 or 4.